

Name: _____ Date: _____ Period: _____

Distance-Rate-Time Word Problems

Situation: Maddy and her friend, Bria, are 380 miles apart. At noon, Maddy starts to drive toward Bria at 40 mph. Bria leaves to meet Maddy two hours later. She is taking the same route and driving at 60 mph. At what time will Maddy and Bria meet?

1. What type of DRT Problem is this? meet up

2. Write the GENERAL equation for this type of problem. $TD = d_1 + d_2$

3. Define a variable. Let t = Maddy's time

4. Fill in the DRT Table below.

	rate	time	Distance
Maddy	40	t	$40t$
Bria	60	$t - 2$	$60t - 120$

5. Using the GENERAL equation from #2 and your table, write an equation for the situation.

6. Solve the equation.

$$380 = 40t + 60t - 120$$

$$500 = 100t$$

$$5 = t$$

ANSWER THE QUESTION(S): 5 pm

Situation: Nora leaves her house driving at an average rate of 40 mph. Her friend, Emilia, leaves a half hour later and follows her at an average rate of 60 mph. How long will it take Emilia to catch up with Nora?

1. What type of DRT Problem is this? Catch up

2. Write the GENERAL equation for this type of problem.

$$d = d \text{ or } rt = rt$$

3. Define a variable.

Let t = Nora's time

4. Fill in the DRT Table below.

	rate	time	Distance
Nora	40	t	$40t$
Emilia	60	$t - \frac{1}{2}$	$60t - 30$

5. Using the GENERAL equation from #2 and your table, write an equation for the situation.

6. Solve the equation.

$$40t = 60t - 30$$

$$\begin{array}{r} -20t = -30 \\ \hline -20 \quad -20 \end{array}$$

$$\boxed{t = \frac{3}{2} = 1\frac{1}{2}}$$

ANSWER THE QUESTION(S): one hour

Situation: Max and his friend, Jonah, leave Max's house traveling in opposite directions on a straight road. Jonah drives 20 mph faster than Max. After four hours, they are 250 miles apart. How fast does Jonah drive? How fast does Max drive?

1. What type of DRT Problem is this? opposite direction

2. Write the GENERAL equation for this type of problem. $TD = d_1 + d_2$

3. Define a variable. Let r = Max's rate

4. Fill in the DRT Table below.

	rate	time	Distance
Max	r	4	$4r$
Jonah	$r + 20$	4	$4r + 80$

5. Using the GENERAL equation from #2 and your table, write an equation for the situation.

6. Solve the equation.

$$\begin{array}{r} 250 = 4r + 4r + 80 \\ - 80 \quad \quad - 80 \\ \hline \end{array}$$

$$\frac{170}{8} = \frac{8r}{8}$$

$$21.25 = r$$

$$\text{Max} = 21.25 \text{ mph} \quad \text{Jonah} = 41.25 \text{ mph}$$

ANSWER THE QUESTION(S): _____

Situation: Kelly leaves on a 9 am (Eastern Time) flight from DC to Colorado. The plane flies an average speed of 600 mph. On her way home, the plane flies an average speed of 550 mph and Kelly's flight time is 3 hours. After her first flight, what time did she land in Colorado (in Eastern Time)?

1. What type of DRT Problem is this? round trip

2. Write the GENERAL equation for this type of problem. $d = d$

3. Define a variable. Let t = time from DC to CO

4. Fill in the DRT Table below.

	rate	time	Distance
DC \rightarrow CO	600	t	$600t$
CO \rightarrow DC	550	3	1650

5. Using the GENERAL equation from #2 and your table, write an equation for the situation.

6. Solve the equation.

$$\frac{600t}{600} = \frac{1650}{600}$$

$$t = 2.75 \text{ hours}$$

ANSWER THE QUESTION(S): 2 hours and 45 minutes

11:45am